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| 09/536,637 | 03/28/2000 | Hitoshi Nakano | 684.2985 | 5659 |
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| FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112 | | | CIRIC, LJILJANA V | |
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| | | | 3753 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/536,637 | NAKANO, HITOSHI |
| | Examiner Ljiljana (Lil) V. Ciric <i>JVC</i> | Art Unit 3753 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 05 March 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2,4-6,8,9,11,18-20 and 22-27 is/are pending in the application.
- 4a) Of the above claim(s) none is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,2,4-6,8,9,11,18-20 and 22-27 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 06 February 2003 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action is in response to the amendments and arguments filed on March 5, 2004.
2. Claims 1, 2, 4 through 6, 8, 9, 11, 18 through 20, and 22 through 27 remain in the application, of which claims 22 through 27 are new and the remainder are as amended, either directly or indirectly.

Response to Arguments

3. Applicant's arguments filed on March 5, 2003 have been fully considered and are not persuasive.

Again, as a preface to the following traversal of applicant's arguments, the examiner hereby notes that the claims in a pending application should be given their *broadest* reasonable interpretation. See In re Person, 181 USPQ 641 (CCPA 1974).

More specifically, in response to applicant's arguments that *Endo* "does not teach nor suggest, among other features, providing the second heat exchanger in a first housing proximate to the chamber, and providing the refrigerator and the first heat exchanger in a second housing separate from the chamber", the examiner first of all points out that in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the first and second housings and the locations thereof relative to the chamber) are not recited in the previously rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Second of all, in response to this argument as applied to the claims as amended, it is noted (as discussed in greater detail in the corresponding rejection later in this Office action) that, while *Endo* schematically shows all of the various heat exchangers and elements of the refrigerator as being disposed in distinct housings which are both "proximate" (as broadly interpreted as required) to the chamber or enclosure 2 and separate therefrom, and while *Endo* does not per se disclose

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the refrigerator and the first heat exchanger as being disposed together in a single housing as now recited in the claims, nevertheless, absent a showing of criticality or unexpected results, it is generally a matter of design choice *not* considered inventive to integrate the various parts of an apparatus (i.e., the housings of these elements) with each other. See *In re Lockhart*, 90 USPQ 214 (CCPA 1951). Similarly, absent any resulting modifications to the operation of the apparatus, it is generally *not* inventive to shift the location of the various parts (i.e., the refrigerator and the first heat exchanger) of the apparatus relative to each other (such as by placing these in a single housing). See *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Also, once again in response to applicant's arguments that the applicant's claims distinguish from the *Endo* reference, applicant is respectfully reminded once again that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, once again, applicant is reminded that "[A]pparatus claims cover what a device *is*, not what a device *does*. (Emphasis in original). *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Thus, absent a recitation of distinguishing structure, little or no patentable weight is given to the functional or intended use limitations in the claims [such as "for exchanging heat between the coolant and the supply of air supplied into said chamber" as recited in claim 1 of the instant application] on which applicant relies for patentability.

Furthermore, the examiner hereby also reiterates in response to the aforementioned arguments that the material or article worked upon also does not limit apparatus claims, and that the intended manner of operating a device or apparatus also does not differentiate an apparatus claim from the prior art in a patentable sense. For example, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "inclusion of materials or article worked upon by a structure being claimed does not impart patentability to the claims. See *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA

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1963)). Finally, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. See *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Applicant's arguments thus fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's arguments also thus do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Oath/Declaration

4. This application presents a claim for subject matter not originally claimed or embraced in the statement of the invention. For example, that the second heat exchanger is disposed in a first housing proximate to the chamber and that the refrigerator and the first heat exchanger are disposed in a second housing separate from the chamber as now recited in each of base claims 1 and 8 represents subject matter not originally claimed nor embraced in the statement of the invention. A supplemental oath or declaration is required under 37 CFR 1.67. The new oath or declaration must properly identify the application of which it is to form a part, preferably by application number and filing date in the body of the oath or declaration. See MPEP §§ 602.01 and 602.02.

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first housing proximate to the chamber and the second housing separate from the chamber as now recited in base claims 1 and 8 must be shown if not

shown or properly labeled using a reference character corresponding to each of the housings respectively or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The abstract of the disclosure is objected to because it does not fully and concisely characterize the invention as claimed. For example, the abstract makes no mention of the second heat exchanger being disposed in a first housing proximate to the chamber nor of the first heat exchanger and the refrigerator being disposed in a second housing separate from the chamber or similar, as appropriate to properly summarize the claimed invention. Correction is required. See MPEP § 608.01(b).

7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: For example, the specification does not provide proper antecedent basis for either a first housing or for a second housing as now recited in each of base claims 1 and 8.

Claim Objections

8. Claims 11, 18 through 20, and 27 are objected to because of the following informalities: “*a* group consisting of an exposure apparatus, an inspection apparatus and a measuring apparatus” should be replaced with “*the* group consisting of an exposure apparatus, an inspection apparatus and a measuring apparatus” for proper Markush format. Appropriate correction is required.

9. Claim 5 and 24 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Each of base claims 1 and 8, from which claim 5 and claim 24 depend, respectively, already recites the refrigerator as including both a compressor and a condenser.

Claim Rejections - 35 U.S.C. § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 8, 11, 18 through 20, and 22 through 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Base claim 8 recites both an apparatus [i.e., a chamber and an air conditioner] and a process of using the apparatus [see added lines 9-14, for example] and is thus indefinite for failing to positively recite the metes and bounds of protection sought. Claims 11, 18 through 20, and 22 through 27 depending from base claim 8 are similarly rendered indefinite thereby.

Claim Rejections - 35 USC § 101

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claims 8, 11, 18 through 20, and 22 through 27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 8 and all claims depending therefrom appear to be drawn to an apparatus **and** to a process of the using the same simultaneously as opposed to in the alternative, as required.

Claim Rejections - 35 U.S.C. § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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15. As best can be understood in view of the indefiniteness of claims 8, 11, and 22 through 27, claims 1, 2, 4 through 6, 8, 9, 11, and 22 through 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hara*.

Hara discloses the inventive apparatus essentially as claimed, including, for example: a chamber or storage room 1a enclosing equipment (i.e., thermostat Th1, readable on "a measuring apparatus" as well as on "an inspection apparatus" as broadly interpreted as required); a refrigerator having a compressor 4 and a condenser 5 and using a refrigerant; a first heat exchanger 13 for exchanging heat between the refrigerant and a coolant 12 (brine); a second heat exchanger 2 for exchanging heat between the coolant (brine) and the supply of air supplied into the chamber or storage room 1a; an air blower FM2 or FM1; an electric heater H having an associated temperature sensor or thermostat Th2 for heating the supply of air at or to a predetermined temperature, wherein the second heat exchanger 2 is disposed in a first housing or duct 35 proximate to the chamber or storage room 1a as shown in Figure 1; and both a reservoir/brine tank 11 and a pump 14 operably connected between the first heat exchanger 13 and the second heat exchanger 2. The coolant comprises brine (i.e., a salt water solution with a lower freezing point than pure water), and as such is readable on each of claims 9 and 26 where the selected coolant is either water or an anti-freeze liquid, as broadly interpreted as required.

While *Hara* discloses the coolant as comprising brine, *Hara* does not specify, for example, the coolant as being a fluoride inert liquid as claimed in the instant invention. Nevertheless, Official Notice is hereby taken that, in addition to using water and various anti-freeze liquids as coolants in air conditioners, it is likewise conventional to use fluoride inert liquids as coolants in the same.

It would have thus been obvious to one skilled in the art at the time of the invention to choose, based on specific performance/design criteria, any one of a number of known coolants, including a fluoride inert liquid, in order to optimize the performance of the air conditioner under the expected operating conditions, for example.

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Also, while the refrigerator and the first heat exchanger *are* shown as being disposed in respective housings separate from the chamber or storage room 1a, *Hara* does not *per se* additionally disclose the refrigerator and the first heat exchanger as being disposed in a single housing. Nevertheless, absent a showing of criticality or unexpected results, it is generally a matter of design choice not considered inventive to integrate the various parts of an apparatus (i.e., the housings of these elements) with each other. See *In re Lockhart*, 90 USPQ 214 (CCPA 1951). Similarly, absent any resulting modifications to the operation of the apparatus, it is generally not inventive to shift the location of the various parts (i.e., the refrigerator and the first heat exchanger) of the apparatus relative to each other (such as by placing the various parts in a single housing). See *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Thus, it also would have been obvious to one skilled in the art at the time of invention to modify the inventive apparatus of *Hara* by integrating the refrigerator and the first heat exchanger 13 within a single housing separate from the chamber or storage room 1a in order to protect the first heat exchanger and the various elements of the refrigerator while simplifying the overall design and serviceability of the apparatus. By placing the first heat exchanger and all of the various elements of the refrigerator within a single housing, the first heat exchanger and the various elements of the refrigerator would be protected within a simple single casing which at the same time would constitute a readily replaceable stand-alone module separate from the chamber or storage room 1a.

16. As best can be understood in view of the indefiniteness of claims 8, 11, 22 through 24, 26, and 27 and alternately for claims 1, 2, 4, 5, 8, 9, 11, 22 through 24, 26, and 27, claims 1, 2, 4, 5, 8, 9, 11, 18 through 20, 22 through 24, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Endo* (*filed on March 28, 1997, previously of record*) in view of *Tyler* (*also previously of record*).

Endo discloses the apparatus essentially as claimed, including, for example: a chamber or enclosure 2 enclosing semiconductor manufacturing equipment or, more specifically, projection exposure apparatus 2A; a "refrigerator" including the various elements of the system through which refrigerant 23

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circulates; a first heat exchanger or cooler 20 for exchanging heat between the refrigerant 23 and the liquid coolant 4; a second heat exchanger or freezer 22 for indirectly exchanging heat between the air flowing through the ducts of the temperature control system 3 and refrigerant 23; an air blower or fan 9 or 15; a temperature-controlled heater 7 or 13 for heating the supply of air at a predetermined temperature, wherein heater 7 has a corresponding temperature sensor 5 associated therewith while heater 13 has a corresponding temperature sensor 11 associated therewith; a temperature sensor 17 which is disposed inside the chamber 2 and which reads on the measuring equipment as cited in claim 11; a pump 21; a temperature sensor 11 which is disposed adjacent mask R and which reads broadly on the mask inspection equipment as cited in claim 19. The source of the cooling water 24 is broadly readable on the reservoir as recited in claim 6 of the instant application.

While *Endo* does not specify whether either of temperature-controlled heater 7 or 13 is an electric heater or a heating heat exchanger, it is a well-known matter of design choice in the art of HVAC design to use either kind of heater in air conditioning systems and it is furthermore taught by *Tyler* to use an electric heater for heating the supply of air to a predetermined temperature in a controlled-environment test chamber in order to enhance temperature control of the supply air since the operation of an electric heater is generally more readily controlled.

While *Endo* merely provides a schematic system diagram of the disclosed apparatus, and hence does not specify the exact spatial locations of the various elements of the system within the apparatus (such as the reservoir, the pump, and the first and second heat exchangers as cited in claim 6 of the instant application), absent unexpected results, it is nevertheless not patentably significant to merely shift the location of parts within an apparatus. See *In re Japikse*, 86 USPQ 70 (CCPA 1950).

While *Endo* also does not specify the refrigerator or refrigerant subsystem as comprising a compressor and a condenser per se, Official Notice is taken hereby that it is notoriously well-known in the art of refrigeration to include a compressor and a condenser as part of a refrigerator or refrigeration

system in order to generate the phase and temperature changes necessary for the operation of a refrigeration system.

Similarly, while *Endo* discloses the coolant as comprising a liquid, *Endo* does not specify, for example, the coolant as being water or a fluoride inert liquid or an anti-freeze liquid as claimed in the instant invention. Nevertheless, Official Notice is hereby taken that it is conventional to use any one of water, anti-freeze liquids, and fluoride inert liquids as coolants in air conditioners.

Finally, while *Endo* merely schematically shows all of the various heat exchangers and elements of the refrigerator as being disposed in distinct housings which are both “proximate” (as broadly interpreted as required) to the chamber or enclosure 2 and separate therefrom, *Endo* does not per se disclose the refrigerator and the first heat exchanger as being disposed together in a single housing as now recited in the claims. Nevertheless, absent a showing of criticality or unexpected results, it is generally a matter of design choice not considered inventive to integrate the various parts of an apparatus (i.e., the housings of these elements) with each other. See *In re Lockhart*, 90 USPQ 214 (CCPA 1951). Similarly, absent any resulting modifications to the operation of the apparatus, it is generally not inventive to shift the location of the various parts (i.e., the refrigerator and the first heat exchanger) of the apparatus relative to each other (such as by placing these in a single housing). See *In re Japikse*, 86 USPQ 70 (CCPA 1950).

It would thus have been obvious to one skilled in the art at the time of the invention to choose, based on specific performance/design criteria, any one of a number of known coolants, including water or a fluoride inert liquid, in order to, for example, optimize the performance of the air conditioner under the expected operating conditions.

It would thus also have been obvious to one skilled in the art at the time of invention to have one of the temperature-controlled heaters 7 or 13 of *Endo* be an electric heater as taught by *Tyler* in order to facilitate the responsiveness of the heater to changes in temperature and thus to the specific heating requirements of the apparatus at any given time.

Thus, it also would have been obvious to one skilled in the art at the time of invention to both include a compressor and a condenser as part of the refrigerant-carrying loop of the apparatus in order to allow for the phase and temperature changes associated with refrigeration-based heating and cooling as desired, and also to rearrange the location of the various parts of the system relative to each other in order to accommodate specific spatial design constraints, for example.

Finally, it also would have been obvious to one skilled in the art at the time of invention to modify the inventive apparatus of *Endo* by integrating the refrigerator and the first heat exchanger 20 within a single housing separate from the chamber or enclosure 2 in order to protect the first heat exchanger and the various elements of the refrigerator while simplifying the overall design and serviceability of the apparatus. By placing the first heat exchanger and all of the various elements of the refrigerator within a single housing, the first heat exchanger and the various elements of the refrigerator would be protected within a simple single casing which at the same time would constitute a readily replaceable stand-alone module separate from the chamber or enclosure 2.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure all show either semiconductor manufacturing equipment and/or air conditioners characterized by some parts thereof being in one housing and others being in another housing.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action

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is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Cirim, whose telephone number is (703) 308-3925.

While she works a flexible schedule that varies from day to day and from week to week, Examiner Cirim may generally be reached at the Office during the work week between the hours of 10 a.m. and 6 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel, can be reached on (703) 308-1272.

The NEW central official fax phone number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

lvc

April 28, 2004


LJILJANA V. CIRIC
PRIMARY EXAMINER
ART UNIT 3753